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ABSTRACT

This handbook is an inservice training manual and reference source for elementary school teachers who do not have a strong background in nutrition. It is also a curriculum guide with a suggested course of study for integrating nutrition education in grades kindergarten through six with other areas of study such as English, mathematics, and social studies. It is divided into three parts. Part one presents background information on nutrition for teachers and serves as a review for school nurses and health educators. Part two is a guide for a sequential nutrition education program as an integral element in all disciplines of the curriculum. Part three offers teaching aids and resource materials for nutrition education. (JD)

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FOCUS ON NUTRITION

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A TEACHER'S HANDBOOK FOR NUTRITION EDUCATION GRADES KINDERGARTEN THROUGH SIX

Massachusetts Department of Education

2

Nutrition education should be a part of an integrated daily curriculum so that every child, rich or poor, will have the knowledge and wisdom to select and eat foods necessary for good health.

Gregory R. Anrig
Commissioner of Education
Commonwealth of Massachusetts

FOCUS ON NUTRITION

A Teacher's Handbook for Nutrition Education
Grades Kindergarten Through Six

The Commonwealth of Massachusetts
Department of Education
Gregory R. Anrig, Commissioner

The Bureau of Nutrition Education and School Food Services
John C. Stalker, Director
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We wish to give special recognition to *Miss Dorothea Nicoll,* formerly Chief Nutritionist, State Department of Public Health, who served as Co-chairman of the original Committee, and whose encouragement and tireless efforts helped immeasurably with the preparation of this revision.

Dorothy L. Callahan, Editor
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Foreword

Good health is of primary importance for every school child in Massachusetts. Fifty years ago it was designated as the number one objective under the seven cardinal principles of education by the United States Office of Education. The passage of half a century of time has in no way diminished this basic precept. It has, in fact, attained a more encompassing meaning which includes not only physical well-being, but also mental alertness and emotional stability. In 1969 the final report of the White House Conference on Food, Nutrition, and Health reiterated this belief when it stated, *"The intake of appropriate and adequate foods and their effective utilization by the human body is the cornerstone of human growth and development to provide the basis for the maximum fulfillment of each individual's potentials."*

Sound nutritional habits are the basis for good health. The establishment of these practices must be through the cooperative efforts of home, school, and community. Massachusetts accepted this philosophy in 1948, when it published the first edition of this handbook and authorized by law the operation of school food service programs under the administration of the Department of Education. Today the advancement of this philosophy was never more necessary.

The revised edition of this handbook, *Focus on Nutrition,* serves two purposes. It is an in-service training manual and reference source for elementary school teachers who do not have a strong background in nutrition. It is also a curriculum guide with a suggested course of study for integrating nutrition education in grades kindergarten through six to be taught, not as a separate subject, but as it relates to many areas of study such as English, mathematics, and social studies. If each community would incorporate these concepts and follow through with an exemplary school food service program available to each student, giant strides could be made in improving the health of our future citizens and leaders.

A well-nourished child imbued with the knowledge to make good food choices is a prime health objective. Time, effort, and money expended now to attain this goal will show an immeasurable profit in the future through the improved well-being and productivity of the citizens of this state.

Therefore, as Commissioner of Education for the Commonwealth of Massachusetts, I recommend and urge that all school administrators and teachers make a concerted effort to improve the health of our children by making nutrition education an integral part of the curriculum of each school child, from kindergarten through grade twelve, and use the facilities and resources of the school's food service program as the accepted laboratory for the provision of learning experiences which will implement and reinforce the nutrition knowledge received in the classroom.

Gregory R. Anrig
Commissioner of Education

PART ONE BACKGROUND INFORMATION

Part One presents background information for teachers who have had no formal training in nutrition, and also serves as a review for school nurses or health educators. A basic knowledge and understanding is necessary to plan meaningful learning experiences for each class.

Many of the lessons in nutrition learned by pupils in the school lunchroom will be passed on to their families and, in later years, to their own children. Thus, while improving the health and increasing the knowledge of today's children, the school lunch program is also making substantial contribution to the future strength and well-being of the nation.

Dr. Berenice Mallory
Head, Home Economics Unit
United States Department of Health, Education, and Welfare

1
WHY?

The importance of the food we eat for good health and physical fitness is no longer questioned. The right food in the right amount is essential in all stages of development. Diet inadequacies in childhood, for example, cannot be made up as adults.

Everyone in the United States should be able to have a nutritionally adequate diet. Unfortunately, this does not happen. The results of the most recent nationwide survey made in 1965-66 by the United States Department of Agriculture on the foods families are eating indicates the need for expanded efforts in nutrition education.

Dietary deficiencies were found in all age groups. Lack of iron showed up in infants and preschool children. Insufficient calcium was a problem with adolescent girls and women, and again in men of the upper age group. Consumption of vitamins A and C, especially in diets of low income families, and of the vitamin B complex was also below recommended levels. The nutrition of the nation is actually not as good as it was ten years ago.

A poor diet is often the result of a poor choice of foods rather than of a lack of money or of an insufficient supply of the necessary foods. With the vast assortment of foods available and the impact of advertising, plus the propaganda of food fads, it is important that each person have a sound nutritional knowledge as a basis for making the right selection.

The development of proper food habits should begin at birth. However, nutrition education can improve the eating habits of children. It is vital that every child have the opportunity not only to be fed nutritious foods but also to learn to select a good diet. The future of the nation depends upon a population of healthy, well-developed children.

2
A COOPERATIVE EFFORT

Who has the responsibility for nutrition education? The home and the school share it with the community. Nutrition knowledge is useless until it is translated into action. This action takes place mainly in the home during the early years. As a child grows older, he eats away from home more often, either at school, drugstores, restaurants, or the homes of friends. What he eats, and the pattern of his meals and snacks, depends largely on his training and on the example set at home and in school. Home, school, and community — each has a contribution and a responsibility.

Contribution of the Home

- Feed and train their youngsters as well as possible, asking guidance when necessary. This is accomplished by serving nutritionally sound meals that include a wide variety of foods and by giving special attention to nutritious between-meal snacks.
- Set a good example for their children by showing that all family members need good food, but in different amounts.
- Cooperate with the family physician or school doctor and nurse in the detection and follow-up of nutritional difficulties and in the convalescence from illness.
- Promote and support an optimum school food service program for every child. See that all children have lunch available to them at school, and breakfast in areas where necessary.
- Cooperate with the school in such activities as food habit surveys, exhibits, field trips, projects, and home and school visits; and carry on nutrition teaching in the home through marketing excursions and the preparation and serving of nutritious meals and snacks.

Contribution of the School

- Incorporate and correlate nutrition education in all disciplines of the curriculum that can contribute, including classrooms, cafeteria, physical fitness and health services, and extra-curricular activities for children and parents.

- Know the home conditions, religious and ethnic, so the staff may appreciate how the children live and what factors may limit the application of nutrition knowledge, learning habits, and attitudes.

- Invite parents to school to:
    1. Discuss nutrition problems of the individual child which affect his learning and his health.
    2. Observe school nutrition activities, projects, and meal service.
    3. Participate in PTA or other meetings, courses, or conferences directed toward nutrition education.

- Provide in-service training in nutrition for teachers, nurses, and food service personnel, using available nutrition consultation resources.

- Provide adequate visual aids and teaching materials.

Contribution of the Community

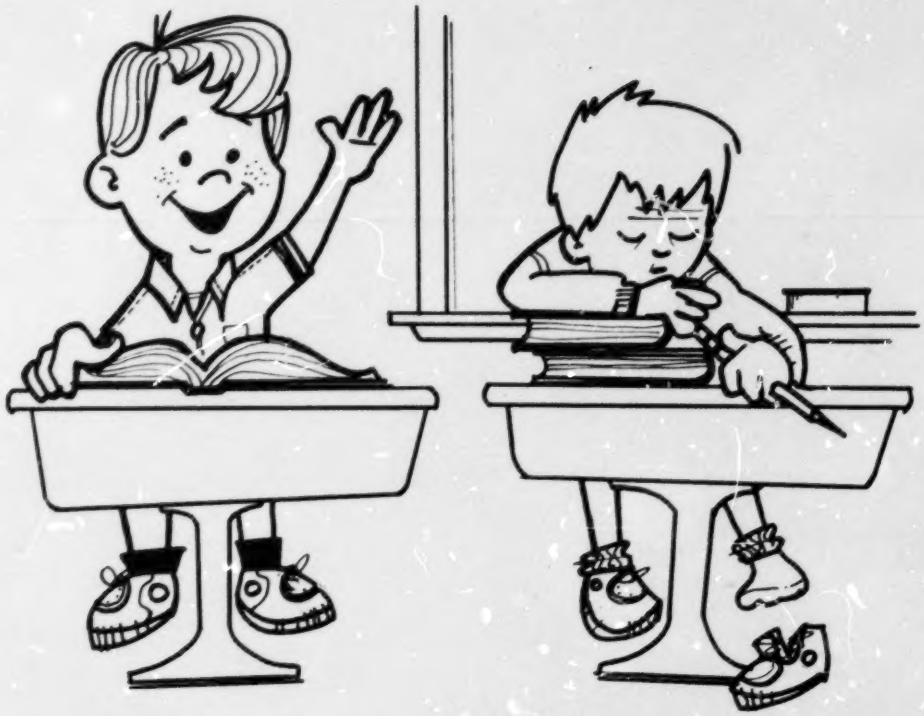
- Provide money and facilities for adequate:
    1. School health service and follow-up.
    2. School food services for all children at all age levels, with attention to special diet as indicated.
    3. Meals at reduced or no cost to those unable to pay.

- Cooperate as citizens in school projects and field trips to dairies, food plants, farms, stores, and industries.

- Participate in community-wide projects such as institutes, meetings, radio and television programs, exhibits, and physical fitness activities.

Leadership in nutrition education *may well be the prerogative of the school since it has a closely-knit staff of recognized standing in education, with facilities for cooperative guidance from health personnel. The school should also provide one-third of the meals on school days and, in some instances, breakfast as well. These school experiences are excellent opportunities to learn* ***what*** *to eat and* ***why,*** *so good food habits can be established that will carry over into adulthood.*

3
KNOWING THE SIGNS



The results of the nutritional survey made in 1969 of Massachusetts public school children clearly show the need for nutrition education. Many children do not get enough of the nutrients necessary for good health.

WHAT WAS FOUND IN MASSACHUSETTS

Approximately 80,000 students in grades one through twelve recorded what they had eaten within the last twenty-four hours. The number surveyed represented a scientific sampling of all of the public school children in Massachusetts. The data was processed at the State Department of Education Research and Development Center.

MILK AND MILK SUBSTITUTES

About 72 percent of the children had the recommended milk allowance or its equivalent on the day of the study. Boys did better than girls as 78 percent of the boys compared to 67 percent of the girls had the recommended amount. More than 21 percent of the children had only two glasses of milk or less on the day of the survey.

MEAT, FISH, POULTRY, AND OTHER PROTEIN-RICH FOODS

On the day of the survey, 63 percent of the children had two or more servings of protein-rich foods. This means that 37 percent had less than the recommended two servings of meat or equivalent.

FRUITS AND VEGETABLES

Less than half of the children, 45 percent, ate the recommended four or more servings of fruits and/or vegetables; 37 percent had two or less servings. Only 62 percent included a fruit or vegetable rich in vitamin A; only 72 percent, a fruit or vegetable rich in vitamin C.

SWEETS

On the other hand, too many children seem to be eating too many servings of cake, cookies, candies, carbonated beverages, and the like. On the day of the survey, 72 percent of the children reported eating three or more servings of concentrated sweets. These sweets which offer mainly "empty" calories take away the appetite for the more important foods, and point to one reason for two widespread forms of malnutrition — dental caries and obesity.

WHAT THIS COULD MEAN

Malnutrition results if children fail to eat the nutrients needed or if, for various reasons, they cannot digest and absorb them. When the body gets too much of one nutrient and too little of others, it has trouble. Only balanced meals, with sufficient foods from each of the important food groups, can insure an adequate supply of all known and unknown nutrients necessary as the child develops.

Even children from affluent families may be malnourished. They may be overweight from parental permissiveness or from eating too rich foods or extra snacks. Obesity is truly as much a form of malnutrition as is severe underweight, rickets, or scurvy.

Teachers in their day-to-day contact with children have an excellent opportunity to promote better health and nutrition in their classes. By developing an insight, they can recognize signs of possible difficulties.

SIGNS OF PHYSICAL FITNESS Usually Meaning Good Nutrition	SIGNS OF LACK OF PHYSICAL FITNESS Often Influenced by Poor Nutrition
Stamina and physique — good.	*Vitality and endurance* — poor (susceptibility to infections and colds).
Muscles — firm and ready. Feel them.	*Muscles* — flabby and slow to respond.
Fat — protective layer of fat under the skin. It can be felt.	*Fat* — too little fat under the skin for protection, or an excess of fat.
Posture — stands straight, sits straight, shoulders flat, abdomen flat.	*Posture* — tired, shoulders drooping, abdomen protruding.
Color — healthy and glowing.	*Color* — wan, dull, sallow.
Skin — clear and smooth.	*Skin* — muddy or pasty.
Mouth — gums and lips reddish pink.	*Mouth* — lips pale; tongue coated; gums spongy, bleeding, or very pale.
Eyes — bright and clear.	*Eyes* — dull or with dark circles beneath.
Hair — smooth and lustrous.	*Hair* — rough and dull.
Teeth and bones — sound.	*Teeth* — decayed. *Bones* — soft and deformed.
Attitude — alert, active, adaptable, good-natured.	*Attitude* — listless, overactive, timid, irritable.
Appetite and digestion — good.	*Appetite* — finicky about food, constipated, frequent upset stomach.
Sleep — sound.	*Sleep* — restless.
Growth — normal.	*Growth* — stunted height, underweight (10 percent below normal for age and height), overweight (20 percent above normal for age and height).

The child's growth, likes and dislikes, and his attitudes toward school, the teacher, and classmates vary with his age group. A teacher who knows about normal growth expectancy, behavior patterns, and food acceptance will have a better understanding of her class.

FIVE-, SIX-, AND SEVEN-YEAR-OLDS

The child of this age grows about two inches in height and gains from three to seven or eight pounds in weight each year. Wobbly baby teeth, and sore gums near new teeth, make the textures of foods extremely important. Tough, lumpy, and stringy foods are often left uneaten.

These children, who may refuse foods by spells, express likes and dislikes in no uncertain terms. There is apt to be a rapid change from "good to bad" behavior and back again. The teacher's ideas and example are very important. She is often successful in getting new foods accepted willingly. Teachers' eating with these grades has many advantages, although this is a rapidly disappearing custom.

Sitting still is hard work. Wiggling is especially noticeable at the table. The coordination of small muscles is not fully developed. Children learn to carry trays, but they often find it hard to open milk cartons or to handle straws and utensils skillfully. They prefer "finger" foods.

Colds and "flu"; childhood diseases such as mumps and chicken pox; toothache; and "stomach-ache" due to worry about school are common to this age. These upsets may spoil the appetite of even the hungriest child once in a while.

EIGHT-, NINE-, AND TEN-YEAR-OLDS

This is the age of slow, steady growth. Children grow an average of one and one-half to two and one-half inches in height and gain four to ten pounds in weight each year.

Tremendous eaters begin to eat less, and poor eaters begin to pick up during these years. There are fewer illnesses, lasting a shorter time, although there may be an increase in allergies. Fussy eaters often do better at school than at home.

Some are still getting new teeth, and others need dental care, so the appetite may be affected at times. Desserts and sweets are getting to be favorites and sometimes crowd out other valuable foods. These children are more ready to taste new things. They are not so upset by change. They know school and what to expect.

Table manners are improving, except for the tendency to bolt food and to speed up in order to get out to play. Fingers are rarely used because developed muscular skill now helps them to handle utensils better.

The ten-year-old child prefers the company of his own sex. He is starting to be a "joiner." Activities such as Cub Scouts, Brownies, and Little League baseball teams may provide motivation for better eating habits and choice of good lunches. This age group enjoys taking part in special projects.

ELEVEN- TO THIRTEEN-YEAR-OLDS

Eleven- to thirteen-year-olds show a wide range of development and behavior. Some are well developed physically; others are trying to catch up. Some are responsible and stable; others are immature and act younger than their years. Girls are usually more mature than boys.

This group grows from two and one-half to three and one-half inches in height and gains six to thirteen pounds each year. At this age they are curious about what is happening everywhere, including the cafeteria.

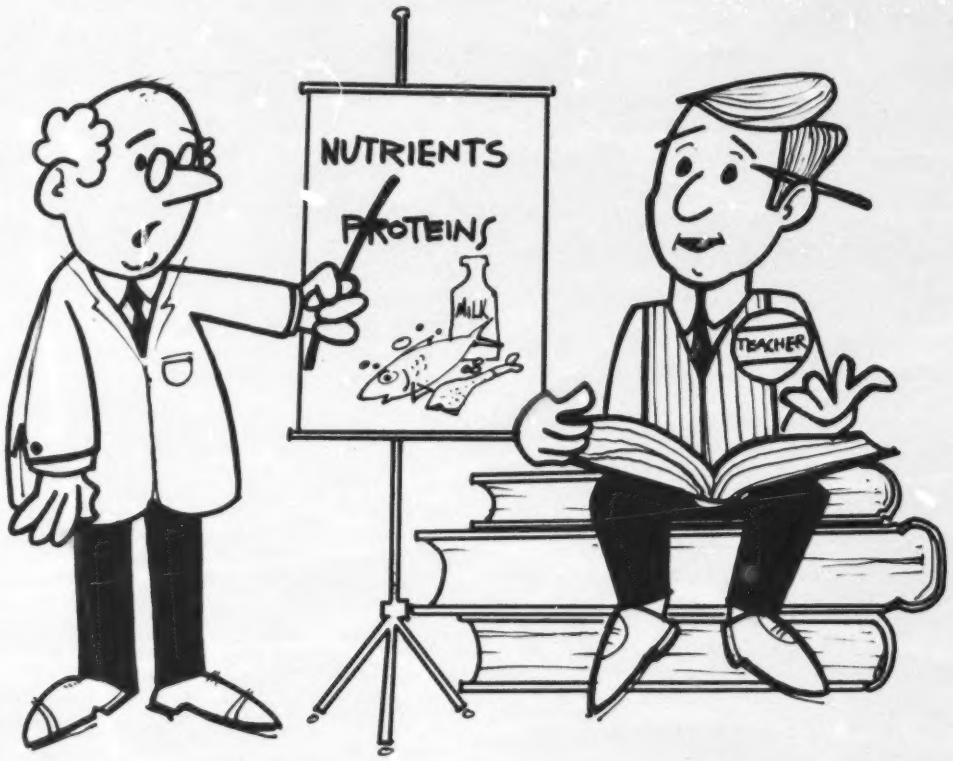
By this age, most youngsters have eaten away from home enough, either at school or out with family friends, so that they readily try new foods and familiar foods in new ways. They enjoy suggesting names for special dishes and menus for certain weeks. Meals are more regular, appetites are steadier, and likes and dislikes are less temperamental than later in the teens.

Boys and girls begin again to enjoy doing things together. They have a great desire to be useful and important. The projects of such groups as health councils, cafeteria service clubs, Scouts and other youth organizations can create pride in the school cafeteria.

Reading is at a peak. This age group enjoys bringing in material for bulletin boards, making exhibits and posters, and doing programs for assemblies. Meals of the astronauts capture their interest.

These children are interested in science, learning how their bodies use foods. They are ready to discuss the "whys" and "hows" of nutrition and work proudly with the cafeteria manager. They can plan and carry out projects. The school food service program and nutrition education in other classes can be closely tied together.

4
A WORKING KNOWLEDGE



A working knowledge of nutrition helps the teacher to understand the "whys" and to interpret the needs to her classes. The school years are a time of rapid growth, great physical development, and activity. It is important that every child receive an abundant supply of all the food nutrients.

There are well over fifty nutrients now known — and more are being discovered — to be needed by the body. Each performs its own particular job in building or maintaining the body, and no other can take its place. Some carry on many functions. The lack of even one of these essential food elements will hinder the work of others. For example, the body uses iron only when protein is also available.

The essential nutrients fit into five common groups: *proteins, fats, carbohydrates, minerals,* and *vitamins.*

PROTEINS

Protein is used to build and repair muscles, glands, bones, and other tissues. It forms part of all body fluids: blood, lymph, enzymes, and hormones. It may be used for calories when the diet contains too little fat and carbohydrate.

Proteins are made up of twenty "building blocks" called amino acids. Proteins from animal sources, such as milk, meat, fish, eggs, and cheese, are called "complete" because they supply all the essential amino acids which the body cannot build for itself.

"Incomplete" proteins, such as nuts, grains, peas, and beans do not contain all these essential building blocks. They cannot aid growth unless other complete proteins are present. Therefore, animal protein should be included in each meal. Milk in some form is an easy safeguard for this.

CARBOHYDRATES (Sugars and Starches)

Carbohydrates furnish energy for work and play and for all body processes. Extra carbohydrates, not needed for heat or energy, are stored as glycogen in the liver or turned into body fat. These foods are usually the most economical source of calories.

Sugar, honey and candies are the most concentrated sweets. Molasses and brown sugar contain added nutritional values. Starches include cereals, breads, potatoes, macaroni, spaghetti, and other flour products.

FATS AND OILS

Fats and oils also furnish energy. They supply essential fatty acids and give staying-power to meals. Some fats carry the fat-soluble vitamins — A, D, E, and K — and help the body to use them more readily.

If more fats are eaten than are needed, they will be stored in fat paddings on various parts of the body. Ounce for ounce, fats give twice as many calories as carbohydrates or proteins.

MINERALS

Many different minerals are needed for growth and development of tissue and for functioning of every cell in the body. Some minerals are needed in very tiny amounts. Meals rich in the following minerals will supply the others also.

CALCIUM

Over 90 percent of the calcium eaten is used to build and maintain bones and teeth. The rest aids in absorption of iron, clotting of blood, and response of nerves and muscles.

Bones and teeth may suffer if calcium or phosphorus are lacking. Vitamin D is also necessary in order to use both calcium and phosphorus. Since calcium is found mainly in milk and cheese, it is especially important that these foods be included in the child's daily diet.

PHOSPHORUS

Phorphorus is found in all cells of the body. The largest amount is tied with calcium in the bones and teeth. Phosphorus is likely to be sufficient when protein foods are adequate.

IRON

Iron joins with proteins to form the hemoglobin of red cells and to carry oxygen to all parts of the body. Blood that has too little iron fails to carry enough oxygen to the cells. Fast-growing children may be anemic unless lean meat, liver, egg yolk, greens, and other iron-rich foods are eaten regularly to supply iron and protein together.

IODINE

Iodine acts as a "timer" for the body and helps the thyroid gland to regulate the rate at which the body uses energy. The use of iodized salt and plenty of sea foods will supply sufficient iodine.

FLUORINE

Fluorine is found naturally in some water supplies and may be added to others by the city or town. It is being studied because small amounts seem to reduce tooth decay in children and fragile bones in older adults.

VITAMINS

There are a great many vitamins, differing widely in makeup and function. Every one is needed for normal growth and development and for maintenance of health and vigor.

Each vitamin has a very specific function in the body, and no other can take its place. Many work together in certain body functions such as metabolism, and a severe lack of even one can cause a deficiency disease over a period of time. These six vitamins are the best known and occur in a large variety of foods.

VITAMIN A

Vitamin A is necessary for healthy skin; for lining of eyes, ears, lungs, and digestive tract; and for helping the body to resist infection. It aids in tooth and bone formation and helps the eyes to adjust more easily to changes from bright to dim light.

Vitamin A is fat-soluble and is not lost in cooking water. Butter, enriched margarine, liver, and egg yolk are all good sources of vitamin A. The body takes carotene from dark green leafy and bright yellow vegetables and makes vitamin A. Extra vitamin A is stored in the liver.

THIAMINE (Vitamin B-1)

Thiamine is essential for steady nerves and alert minds. It stimulates the appetite and aids digestion and use of food in the body, especially the

metabolism of starches and sugars. Thus, children who eat large amounts of sugar, candies, cookies, and sweet drinks need extra thiamine.

Except for lean pork, no one food contains much vitamin B-1. Therefore, many different foods are needed to make up the day's supply. Whole-grain or enriched breads and cereals and milk should be included daily. Teen-age "reducers" often lack thiamine.

Thiamine, which dissolves in cooking water, is lost unless the water is used in soup, gravy, or other foods within twenty-four hours. Baking soda added to foods also destroys thiamine, as does cooking at high temperatures. Thiamine is not stored in the body and must be supplied every day.

RIBOFLAVIN (Vitamin B-2)

Riboflavin prolongs the prime of life. It is essential for healthy nerves, skin, and eyes.

The best sources of riboflavin are milk, cheese, eggs, meat (especially liver), and green leafy vegetables. It is easily destroyed in sunlight and is lost in cooking when juices from meat or vegetables are discarded. Riboflavin is not stored in the body. It must be supplied every day.

NIACIN

Niacin helps the normal functioning of skin and digestive tract. The best sources of niacin are meat, poultry, peanuts, dried peas and beans, and whole-grain cereals. It is water-soluble so cooking water should be saved. There is little loss in baked, roasted, or frozen foods.

Niacin is not stored in the body. It must be supplied every day.

ASCORBIC ACID (Vitamin C)

Ascorbic acid is essential for connective tissue. It prevents fragile blood vessels and easy bleeding, aids in the healing of wounds, and strengthens teeth and bones.

Citrus fruits are a very good source of vitamin C. Canned and frozen citrus fruits and juices may be used instead of fresh ones. Tomatoes, peppers, cabbage, boiled or baked potatoes, and melon also supply some ascorbic acid.

Vitamin C is water-soluble and easily destroyed by air and heat. Foods rich in vitamin C should be served raw as often as possible. They should not be prepared too far ahead of time, nor stirred much during cooking. Adding baking soda during cooking destroys vitamin C.

Vitamin C is not stored in the body and must be supplied daily.

VITAMIN D

Vitamin D regulates the use of calcium and phosphorus in making strong bones and teeth. When sunlight shines on bare skin out-of-doors, the body makes its own vitamin D. On cold or stormy days or when the skin is covered, vitamin D must be supplied from milk (fresh or evaporated), from fish liver oils, or from other foods to which vitamin D has been added.

The child's requirement for vitamin D is measured in International Units. Four hundred units are needed daily. Labels on cans, cartons, or milk-bottle caps show how many units are supplied. Concentrates should be taken only under the supervision of a doctor.

Vitamin pills, capsules, and concentrates may be ordered by physicians when an extra supply of any single vitamin or a number of vitamins is needed. These do not take the place of an adequate, well-balanced diet. There are many little-known but essential vitamins that are found in good meals but are not yet marketed commercially.

OTHER DIETARY CONSIDERATIONS

There are other factors that must be considered in planning a well-balanced diet. Although not actually nutrients, they contribute to the nutritional health of the body.

WATER

Although not a food itself, water is absolutely essential to the use of food in the body and to the maintenance of life itself. You can live a month or longer without food, but only a few days without water.

Water is a part of every tissue of the body, even bone. About one hundred pounds of the body of a 150-pound man is water.

Water is supplied in three ways. It comes through fluid foods such as soup, beverages, and water; from solid foods like fruits, vegetables, and even breads; and from the body tissues themselves, for water is produced in the process of metabolism.

Four to six glasses of fluids a day, including beverages, are suggested for a child. On hot days, or with a very active program, more may be needed. In schools lacking drinking facilities, special attention should be paid to meeting the children's need for water.

FIBER OR CELLULOSE

Fiber, though not digested by the body, is necessary for bulk and stimulation of the digestive tract. A well-balanced diet, rich in raw fruits and vegetables, will supply the necessary amount in an attractive, tasty way. Too much rough fiber may be irritating to some children.

CALORIES

Calories are not nutrients themselves. They do not go into the structure of the body as minerals do. Calories are measurements of (1) the amount of heat or energy needed by the body for all its activities and (2) of the amount available in foods.

All foods supply calories. Foods rich in fats provide more calories in each serving than any other foods. Sweet, sugary foods are also high in calories. Water foods like raw fruits and vegetables have the least calories but are high in minerals and vitamins.

Everyone needs calories every minute of his life, awake or asleep. The number of calories needed each day depends upon body size and activity. The calorie requirement is least during sleep, and most when extremely active. Extra calories are stored until needed. An overweight child needs to decrease his calories by limiting (not omitting) the foods high in fat and carbohydrate (sugar and starch); the underweight child needs to increase these foods.

Recommended Dietary Allowances*, revised 1973. Food and Nutrition Board, National Academy of Sciences-National Research Council—designed for the maintenance of good nutrition of practically all healthy people in the U.S.A.

	age		weight		height		energy	protein	fat-soluble vitamins			water-soluble vitamins							minerals					
	from	up to							vitamin A activity	vitamin D	vitamin E activity¶	ascorbic acid	folacin‖	niacin**	riboflavin	thiamin	vitamin B_6	vitamin B_{12}	calcium	phosphorus	iodine	iron	magnesium	zinc
	yr.		kg.	lb.	cm.	in.	kcal.†	gm.	RE‡	I.U.		mg.	mcg.	mg.				mcg.	mg.	mg.	mcg.	mg.		
infants	0.0	0.5	6	14	60	24	kg. × 117	kg. × 2.2	420#	1,400	400	4	35	50	5	0.4	0.3	0.3	0.3	360	240	35	10	60	3
	0.5	1.0	9	20	71	28	kg. × 108	kg. × 2.0	400	2,000	400	5	35	50	8	0.6	0.5	0.4	0.3	540	400	45	15	70	5
children	1	3	13	28	86	34	1,300	23	400	2,000	400	7	40	100	9	0.8	0.7	0.6	1.0	800	800	60	15	150	10
	4	6	20	44	110	44	1,800	30	500	2,500	400	9	40	200	12	1.1	0.9	0.9	1.5	800	800	80	10	200	10
	7	10	30	66	135	54	2,400	36	700	3,300	400	10	40	300	16	1.2	1.2	1.2	2.0	800	800	110	10	250	10
males	11	14	44	97	158	63	2,800	44	1,000	5,000	400	12	45	400	18	1.5	1.4	1.6	3.0	1,200	1,200	130	18	350	15
	15	18	61	134	172	69	3,000	54	1,000	5,000	400	15	45	400	20	1.8	1.5	1.8	3.0	1,200	1,200	150	18	400	15
	19	22	67	147	172	69	3,000	54	1,000	5,000	400	15	45	400	20	1.8	1.5	2.0	3.0	800	800	140	10	350	15
	23	50	70	154	172	69	2,700	56	1,000	5,000		15	45	400	18	1.6	1.4	2.0	3.0	800	800	130	10	350	15
	51	+	70	154	172	69	2,400	56	1,000	5,000		15	45	400	16	1.5	1.2	2.0	3.0	800	800	110	10	350	15
females	11	14	44	97	155	62	2,400	44	800	4,000	400	10	45	400	16	1.3	1.2	1.6	3.0	1,200	1,200	115	18	300	15
	15	18	54	119	162	65	2,100	48	800	4,000	400	11	45	400	14	1.4	1.1	2.0	3.0	1,200	1,200	115	18	300	15
	19	22	58	128	162	65	2,100	46	800	4,000	400	12	45	400	14	1.4	1.1	2.0	3.0	800	800	100	18	300	15
	23	50	58	128	162	65	2,000	46	800	4,000		12	45	400	13	1.2	1.0	2.0	3.0	800	800	100	18	300	15
	51	+	58	128	162	65	1,800	46	800	4,000		12	45	400	12	1.1	1.0	2.0	3.0	800	800	80	10	300	15
pregnant							+300	+30	1,000	5,000	400	15	60	800	+2	+0.3	+0.3	2.5	4.0	1,200	1,200	125	18+††	450	20
lactating							+500	+20	1,200	6,000	400	15	60	600	+4	+0.5	+0.3	2.5	4.0	1,200	1,200	150	18	450	25

*The allowances are intended to provide for individual variations among most normal persons as they live in the U.S. under usual environmental stresses. Diets should be based on a variety of common foods in order to provide other nutrients for which human requirements have been less well defined. See text for more detailed discussion of allowances and of nutrients not tabulated.

†Kilojoules (kJ) = 4.2 × kcal.

‡Retinol equivalents.

#Assumed to be all as retinol in milk during the first six months of life. All subsequent intakes are assumed to be one-half as retinol and one-half as beta-carotene when calculated from International Units. As retinol equivalents, three-fourths as retinol and one-fourth as beta-carotene.

¶Total vitamin E activity, estimated to be 80 per cent as alpha-tocopherol and 20 per cent other tocopherols. See text for variation in allowances.

‖The folacin allowances refer to dietary sources as determined by *Lactobacillus casei* assay. Pure forms of folacin may be effective in doses less than one-fourth of the recommended dietary allowance.

**Although allowances are expressed as niacin, it is recognized that on the average, 1 mg. niacin is derived from each 60 mg. dietary tryptophan.

††This increased requirement cannot be met by ordinary diets; therefore, the use of supplemental iron is recommended.

5
MAKING IT EASY

Deciding just how much of each of these nutrients is necessary is a job for experts. The amount varies with age, sex, build, activity, and climate.

In 1943, the country's professional leaders in nutrition were formed into a National Research Council under the National Academy of Sciences. They published the first *Recommended Dietary Allowances* based on nutrition knowledge of the day. Since that time, there have been periodic revisions to bring the recommendations up to date. (See table.) Except for calories, these goals are set well above the minimum amounts necessary to maintain good nutrition in healthy children and adults living in the United States.

The amounts recommended on this table for each nutrient are specified in grams, milligrams, or International Units — all rather unfamiliar terms to the average person. To try to remember all the allowances suggested, and then to sit down every day with pencil and paper to total them up, would be an impossible task.

Fortunately, this is not necessary. The United States Department of Agriculture has developed a food pattern called *The Basic Four* that will meet the daily recommendations. To be assured of a well-balanced diet, all that is necessary is to include the foods listed under *The Basic Four* in the amounts specified.

THE BASIC FOUR

Under *The Basic Four*, the foods we eat are divided into four separate groups. The minimum amount of foods from each group to be eaten daily is listed. The guide is simple to remember and easy to follow. Of course, other foods should be added as needed to complete the meals and supply additional energy.

MILK GROUP

Some milk is needed for everyone:

Children under nine	2 to 3 cups
Children nine to twelve	3 or more cups
Teen-agers	4 or more cups
Adults	2 or more cups

It is not necessary to take all of this milk as a beverage. Foods made with milk, such as puddings, soups, creamed dishes, ice cream, and all varieties of cheese except cream cheese, may be substituted.

MEAT GROUP

Two or more servings a day are recommended.

This group includes beef, veal, pork, lamb, poultry, fish, and eggs. Dry beans, dry peas, and nuts may be used as alternates.

VEGETABLE — FRUIT GROUP

Four or more servings a day are recommended.

Include:

A citrus fruit or other fruit or vegetable important for vitamin C daily.

A dark green leafy or bright yellow vegetable for vitamin A at least every other day.

Other fruits and vegetables, including potatoes.

BREAD — CEREAL GROUP

Four or more servings a day are recommended.

The foods in this group should be whole-grain or enriched.

6
UNDERSTANDING THE FAMILY BACKGROUND

Food means a great deal to most children; however, it means different things to different families. Many factors influence what families enjoy eating and how they prepare and serve food.

FACTORS INFLUENCING EATING HABITS

- Convenience foods
- Desire and skill in cooking
- Facilities for preparing meals
- Merchandising "give-aways"
- National or racial background
- Psychological aspects of food
- Religious practices
- Section of the country lived in longest
- Socio-economic status
- Supermarket displays
- Television advertising
- Time: working mothers or overlapping activity schedules of family members

All families build their own traditional food patterns. These are usually a combination of the old and the new, adapted to present living conditions. There may be a special way of preparing common foods.

Some families may purchase unusual foods at a much higher cost because of a preferred flavor. Sometimes this is done as a treat, or for guests, or to experiment with something new. It may be done for the emotional satisfaction of "meals like mother used to make." Families who have moved from other parts of the country or overseas often spend too great a proportion of their money for familiar foods in an effort to make the strange community feel more like home.

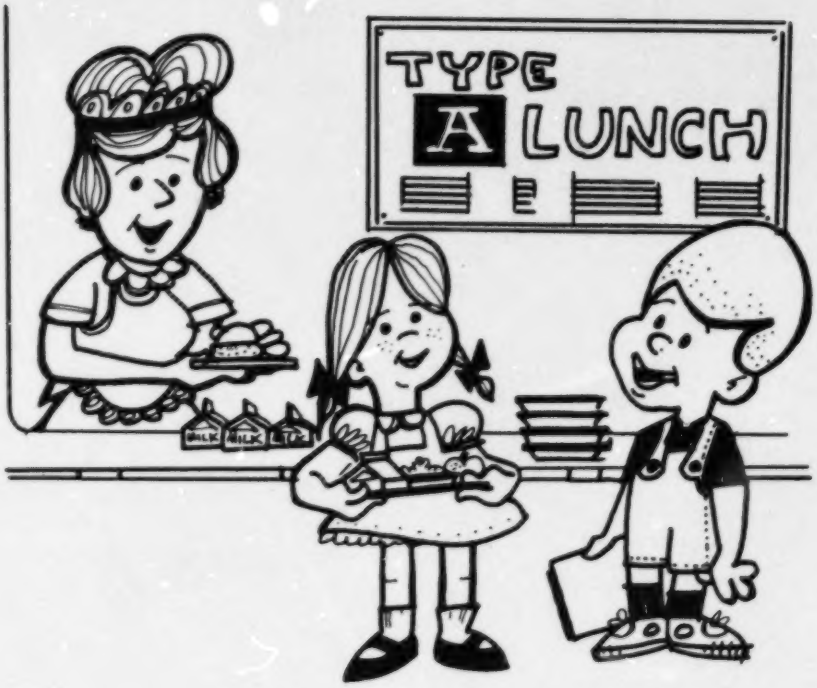
Jewish families, particularly Orthodox Jews, follow detailed dietary laws which prohibit them from eating pork products or shellfish and from using meat and dairy products in the same meal. All meats must be processed in a special way called "Kosher." The Moslem religion, too, excludes pork from the diet, and the Koran indicates that meat must be processed as in the Jewish dietary laws.

Many of the Puerto Rican people, new to our geographic area, have difficulty finding familiar foods. Lack of tropical foods and limited incomes may cause restricted diets. Typical foods in Puerto Rico are rice, legumes, and viandas (starchy vegetables such as white sweet potato, green plantains, and green bananas). Dried codfish and milk are added as money allows. Fruits and green vegetables are used in limited amounts.

Group discussion by a class about their favorite foods will reveal a great variety of eating customs and of ways people learned to try new foods. A group food habit survey is another way of learning which foods are used most often, how they are prepared, and what is eaten as snacks or meals away from home. Nutritionists will be glad to help teachers with such surveys.

The teacher who has visited in homes or gets to know individual families has the best opportunities to make schoolroom activities fit the actual needs and interests of her class.

7
UNDERSTANDING SCHOOL FOOD SERVICES



There are two main objectives of the school food service program.

1. To develop good food habits and attitudes that will result in an intelligent selection and consumption of a variety of nutritious foods throughout life.

2. To insure that each child starts the day with a good breakfast and has an adequate lunch while at school.

Nutritionally, the Type A lunch provides one-fourth to one-third of the daily dietary requirements of a child nine to twelve years of age. The menu pattern was established by the United States Department of Agriculture and the National Research Council. It serves as a guide for planning well-balanced, nutritious meals which supply the kinds and amounts of food that children need. Slightly larger servings are necessary to meet the requirements of the child older than twelve years; and slightly smaller servings may be served to suit the appetite and nutritional needs of the child younger than nine years.

In the 1969 Massachusetts nutritional study of public school children, on the day of the survey three-fourths of the students buying the Type A meal in school had a satisfactory or good lunch. On the other hand, two-thirds of the children bringing lunch from home, going home for lunch, or buying a la carte items had an inadequate meal. In addition, children buying the Type A lunch had plus values in reaching recommended allowances for milk, meat, vegetables, and fruits.

TYPE A MENU PATTERN

The Type A lunch must provide the following quantities of food:

- Two ounces cooked, lean meat, poultry or fish; or two ounces of cheese; or one egg; or one-half cup cooked, dried beans or dried peas; or four tablespoons of peanut butter; or an equivalent quantity of a combination of two of these items. To meet this requirement, these foods must be served in a main dish, or in a main dish and one other menu item.

- Three-fourths cup serving consisting of two or more vegetables or fruits, or both. Full-strength vegetable or fruit juice may be counted to meet not more than one-fourth cup of this requirement.

- One slice whole-grain or enriched bread, or the equivalent.

- One-half pint whole or nonfat milk, or buttermilk, used as a beverage.

The nutritional needs of children require special attention to vitamins A and C, and to iron. It is recommended that the Type A lunch include a source of vitamins A and C and several foods for iron each day.

A GOOD BREAKFAST TO START THE DAY

Every child should start every morning with a good breakfast. In a June, 1969, newspaper article, Dr. Fredrick J. Stare, Chairman of the Department of Nutrition, Harvard University, reported on a ten-week teen-age breakfast experiment. For five weeks the students ate a good breakfast; then for five weeks they ate no breakfast. Three tests were given each morning just before lunch. The students who skipped breakfast took longer to make decisions, were less steady, and did less work; eating a good breakfast made sharper thinking and acting students, and calmer and steadier teen-agers who enjoyed each day more. Dr. Stare concluded that omitting breakfast "is a habit that hurts only the players."

In the Massachusetts nutrition survey, 37 percent of the children came to school on the day of the study with either a poor breakfast or without any breakfast. Only 5 percent of the children ate what could be considered a good breakfast.

A good breakfast pattern includes:

- Fruit or juice
- Cereal
- Bread in some form
- Milk

A protein food such as egg, cheese, or meat should be included often.

THE CAFETERIA IS ANOTHER CLASSROOM

The cafeteria is the ideal classroom for the practice of nutrition that will build and maintain health during growing years. The Type A lunch, and breakfast where necessary, are educational experiences vital to the health of the students.

The teacher is the motivating influence in the cafeteria just as he is in the classroom. The example of the teacher cannot be overemphasized. His is the opportunity to promote nutrition education, to train in food selection and in social etiquette, and to use the cafeteria as a practical laboratory of learning for many classroom subjects. Courses integrated with the school food service program take on a more interesting and meaningful aspect for the students as eating in the cafeteria becomes a pleasant, repeated experience.

PART TWO CURRICULUM GUIDE AND COURSE OF STUDY

Part Two is a guide for a sequential nutrition education program as an integral element in all disciplines of the curriculum. Its format and presentation may require modification to meet the needs, interests, and abilities of each class. Its purpose is to make nutrition education a dynamic and exciting learning experience from early childhood throughout the school years.

A child who is fed properly is a better student than a hungry one. Proper food habits learned early in life are never really "unlearned." The school lunch program can and should be used as a teaching area, a "subject" in the curriculum, a place where theory and practice join forces. Our schools accept responsibility for health education. It is not possible to separate nutrition from health.

Fredrick J. Stare, M.D.
Chairman, Department of Nutrition
Harvard University

8
TEN POINTS FOR EFFECTIVE PROGRAMS

The following points are adapted from *Teaching Nutrition in Elementary Schools,* prepared by the United States Department of Education.

- *The elementary school teacher, rather than a specialist, should be responsible for teaching her pupils about foods and nutrition.* The teacher may wish at times to make use of the special information and skills of the home economics teacher, food service manager, nurse, or other specialist by asking that person to give a demonstration or in some other way to share the teaching.

- *The program of nutrition education in the elementary school should reach parents.* They should know what is meant by good nutrition and should reinforce what is being taught to their children. When parents are not kept informed and are not in sympathy with the efforts of the school to help children establish good food habits, they may nullify those efforts by their indifference and lack of cooperation. The use of all kinds of communication media — radio, television, newspapers, notices, meetings, and conferences — are invaluable links between school and home.

- *The school program of nutrition education should have as its goal the adequate nutrition of all children in the school.* It will include, therefore, the provision of nutrition education experiences for all children and the cooperation by school personnel on additional measures which the community approves. These may be provision of a balanced school lunch for all children, subsidized meals for needy children, breakfast programs, and supplementary feedings for the malnourished.

- *Information about foods should be taught through many concrete activities in which children engage.* This way of working capitalizes on the pupils' interests and helps to insure the development of understanding rather than merely of the ability to recite facts.

- *The nutrition program should be an integral part of the curriculum in each day of the child's school life.* Not an additional or separate subject, it is an important strand or theme to be woven into the disciplines of home economics, health, science, social studies, mathematics, and language arts. The subject of nutrition has many aspects. For that reason, it is taught best through a wide variety of experiences.

- *Nutrition education should be continuous from one school year to the next.* Unnecessary repetition should be avoided. The work in each year should grow out of and build upon that done in previous years.

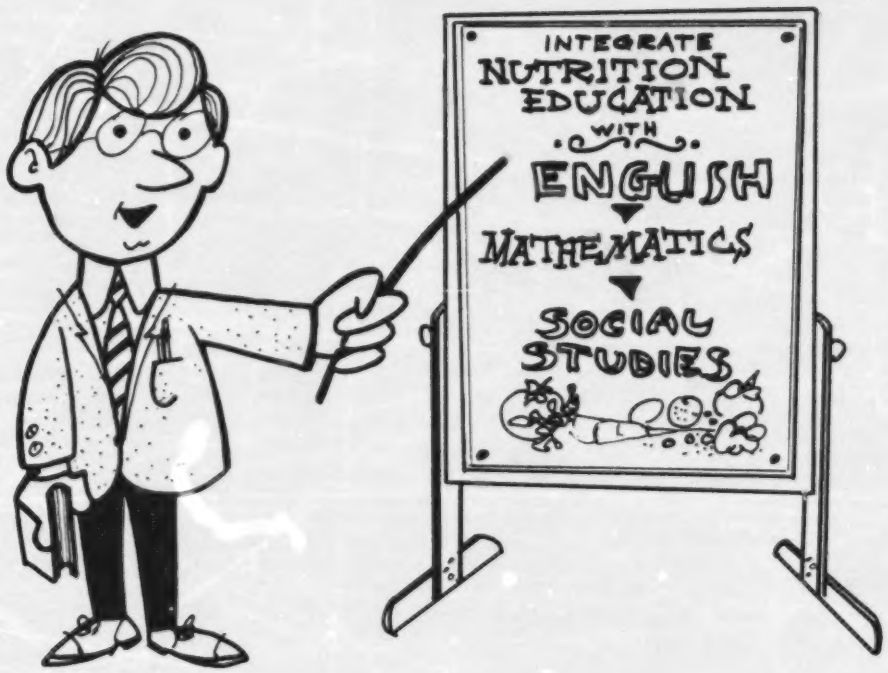
- *The program should be planned cooperatively by elementary school administrators (including superintendent, principals, supervisors) and teachers,* with the advice of persons trained in nutrition and familiar with local nutritional needs, such as the school physician and nurse, the home economics teacher, and the school food service supervisor. In rural communities the advice of the teacher of agriculture or county agricultural agent may be useful, especially in connection with efforts to increase home-grown foods. Nutritionists in clinics and health departments may also be helpful. Community and commercial agencies with concerns for nutrition should be included.

- *The program should be adapted to the conditions in the local community.* Local dietary patterns must be carefully considered, together with social, economic, ethnic, and other conditions which may hinder the improvement of dietary habits.

- *The help of such specialists as the nutrition educator from the Bureau of Nutrition Education and School Food Services and the high school teachers of science, health, home economics, and agriculture* should be available to the elementary school teacher so that he may benefit from the information, materials, and ideas which these specialists can contribute.

- *Professional preparation of elementary school teachers should include practical experiences in foods and nutrition education* to carry over into the classroom and should give some attention to the problems involved in changing food habits. Current information should be made available to teachers through in-service courses and workshops.

9
A PART OF THE CURRICULUM



Nutrition education started for each child on the first day of his life and has been going on steadily ever since. With each new food and different experience in eating, he has built up likes and dislikes, certain habits of eating, ideas about foods, and very definite feelings in regard to them at home and elsewhere. His food habits may be rather firmly set. They have been bolstered by both direct and incidental teaching in the form of comments by parents, relatives, and playmates, as well as teachers.

Whether he learns new food habit patterns easily at school depends in great measure upon the following:

- The flexibility of his nature
- His curiosity for trying new things
- The pleasure of his previous eating experiences

Learning specific facts about foods is of less importance than learning flexible, enjoyable, good eating habits.

EVALUATING A NUTRITION EDUCATION PROGRAM IN SCHOOL

Here are a few questions the teacher may ask about herself and her class.

- Is my own nutrition good and are my eating habits an example of my teaching?
- How many children failed to improve their growth and nutritional status during the past six months judging by rate of gain, physical and mental activity, emotional stability, and physician's examination? Do we know the reasons?
- Are any children, who were formerly well-nourished, losing ground? What has been done about it at school or at home?
- What proportion of children eat a good breakfast? Good lunches?
- Are excess sweets, or other poor eating habits, still a problem? Why?
- Has the necessary guidance for child or family been available and used? Has the school nurse helped?
- Have any parents or school food service personnel remarked about changes in knowledge, attitudes, or actions of youngsters?
- Have other specialists from the school, community, or state reinforced my work when needed?

A nutrition program in school stands or falls on the teacher's own enthusiasm and her originality in adapting her material to the needs of each class with whom she works. No teacher works alone. The parents, the teacher who had the class last year, the school doctor and nurse, the food service supervisor and cafeteria personnel, and the science, home economics, and physical education specialists are all co-workers. Teachers may call on outside consultants (the nutrition educator from the State Department of Education) and community people, too.

CORRELATING NUTRITION EDUCATION WITH OTHER SUBJECTS

Nutrition education does not have to stand alone in the curriculum. It can be, and is, more meaningful when integrated with other subject matter. The school food service program can provide many opportunities for correlating nutrition teaching in the curriculum, and the school cafeteria becomes the ideal classroom for the practice of nutrition.

LANGUAGE ARTS

Students may write compositions or give reports about food, nutrition, or a visit to the cafeteria to see how food is prepared and how equipment operates. Reports can be written for parents, for publication in the school newspaper, or for presentation on television and radio.

Proper forms for invitations are learned when students invite parents, teachers, or community leaders to school lunch or tasting parties. Thank-you notes can be sent to the school food service supervisor or workers for assisting with a special occasion celebration.

The daily menu and food preparation terms can be used for spelling or reading classes.

MATHEMATICS

Lessons can be planned around buying food for one person, a family, a party, or a school menu; recipe amounts; management of money; or handling of change. The number of cartons of milk for recess or lunch, or the number of Type A lunches needed, can be counted. Percentages of children eating lunch can be figured. Graphs can depict participation or plate waste.

SOCIAL STUDIES

Food habits, favorite foods, and customs of other sections of the United States or foreign lands can be illustrated in the cafeteria through special menus and festivities. The study of local and national foodstuff — growth, processing, and distribution — can be studied through the purchasing practices of the cafeteria.

HEALTH AND SCIENCE

Health education can teach the daily food requirements for growth and good health and relate them to the Type A lunch or other typical bag lunch from home. It can emphasize that drugs and other harmful substances are not a substitution for food.

Animal-feeding experiments can demonstrate dramatically the nutritional value of the Type A

lunch. Plant-growing projects could culminate with a tasting party in the cafeteria on "harvest" day.

Observation of the strict sanitation and safety codes practiced in every kitchen, and visits to health departments make fine tours and projects for science students.

ART

Art classes can make wonderful table and counter decorations for special occasions and holidays. Nutrition posters and displays can also be developed and used in the community as well as at school.

CITIZENSHIP

Orderly behavior, consideration for others, proper eating habits, table manners, ability to converse in a friendly manner, and responsibility for the cleanliness and care of public property are some of the social graces and good citizenship practices that can be encouraged through the school cafeteria.

BASIC CONCEPTS FOR NUTRITION EDUCATION

The White House Conference on Food, Nutrition, and Health, which met in December, 1969, developed the following conceptual framework for nutrition education in schools. We have adapted it as the basis for our teacher's guide.

- Nutrition is the process by which food and other substances eaten become you. The food we eat enables us to live, to grow, to keep healthy and well, and to get energy for work and play.

- Food is made up of certain chemical substances that work together and interact with body chemicals to serve the needs of the body.
    1. Each nutrient has specific uses in the body.
    2. For the healthful individual the nutrients needed by the body are usually available through food.
    3. Many kinds and combinations of food can lead to a well-balanced diet.
    4. No natural food, by itself, has all the nutrients needed for full growth and health.

- The way a food is handled influences the amount of nutrients in the food, its safety, appearance, taste, and cost; handling means everything that happens to food while it is being grown, processed, stored, and prepared for eating.

- All persons, throughout life, have need for about the same nutrients, but in varying amounts.
    1. The amounts needed are influenced by age, sex, size, activity, specific conditions of growth, and state of health, altered somewhat by environmental stress.
    2. Suggestions for kinds and needed amounts of nutrients are made by scientists who continuously revise the suggestions in the light of the findings of new research.
    3. A daily food guide is helpful in translating the technical information into terms of everyday foods suitable for individuals and families.

- Food use relates to the cultural, social, economic, and psychological aspects of living as well as to the physiological.
    1. Food is culturally defined.
    2. Food selection is an individual act but is usually influenced by social and cultural sanctions.
    3. Food can be chosen so as to fulfill physiological needs and at the same time satisfy social, cultural, and psychological wants.
    4. Attitudes toward food are a culmination of many experiences, past and present.

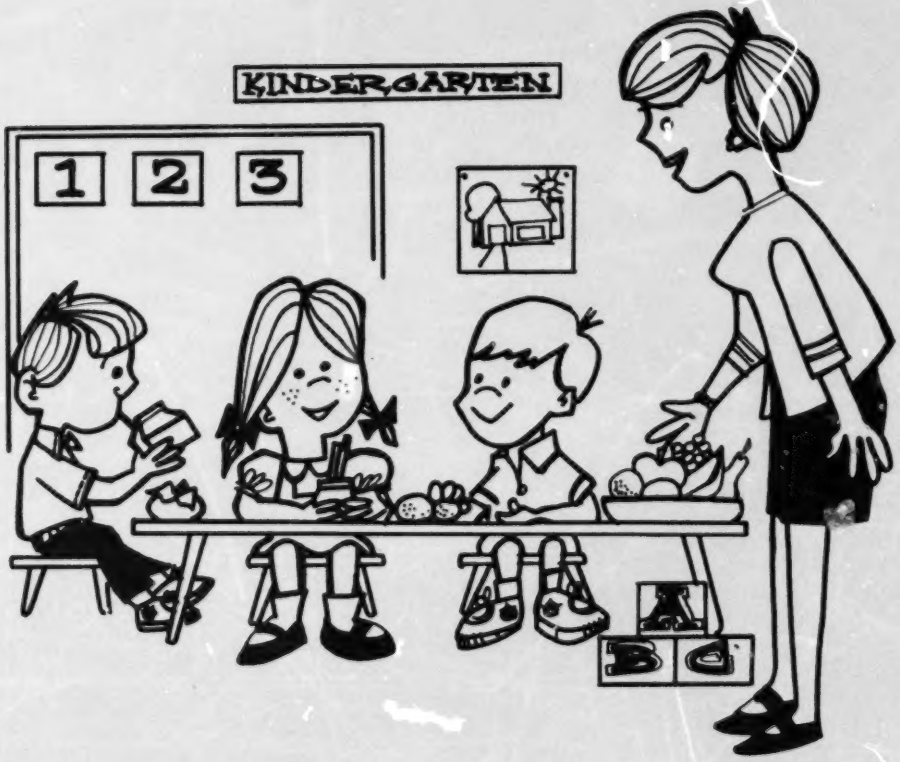
- The nutrients, singly and in combinations of chemical substances simulating natural foods, are available in the market; these may vary widely in usefulness, safety of use, and economy.

- Foods play an important role in the physical and psychological health of a society or a nation just as it does for the individual and the family.
    1. The maintenance of good nutrition for the larger units of society involves many matters of public concern.
    2. Nutrition knowledge and social consciousness enable citizens to participate intelligently in the adoption of public policy affecting the nutrition of people around the world.

10
A TEACHER'S GUIDE

Grades Kindergarten, One, Two

Basic Concept: EATING GOOD FOOD IS FUN



Behavioral Goals	*Generalizations*
• Create an awareness of the wide variety of foods that are good to eat.	There are many kinds of food that are good to eat.
• Demonstrate that the same food can appear in different forms.	Many foods appear in more than one form.

Learning Experiences	*Resources*
• Draw pictures of favorite foods. Label. • Make poster, booklets, or a collage of favorite foods from magazine cutouts. Label. • Make a train from milk cartons and fill with food cutouts. • Make a food alphabet. • Make a bulletin board "fruit tree" or "vegetable garden." • Construct mobile of fruit and vegetable pictures. • Read stories about children from different places which include references to food. • Use foods as symbols in learning mathematics. • Show pictures of families from different countries eating native foods.	American Bakers Association *The Food We Eat* (filmstrip) Florida Citrus Commission *C Is for Citrus* *Four Seasons* *The Orange Clock* *Word Picture Story of Florida Citrus* (all are spirit masters) New England Dairy and Food Council *My Friend the Cow* (pamphlet) United States Department of Agriculture *The Good Foods Coloring Book*
• Visit supermarket with class. Follow with an oral discussion of what was seen. • Draw pictures of new foods seen on trip to supermarket. • Prepare the same food in several ways. • Bring in magazine cutouts of the same food prepared in different ways, or new foods.	Florida Citrus Commission *The Citrus Family* (poster) *Fun Cut-Outs* (companion piece to poster) New England Dairy and Food Council *Every Day Eat 1-2-3-4 Way* (chart and miniature) *Urban Panorama* (kit)

Behavioral Goals	*Generalizations*
• Develop an acceptance of new foods.	Learn to taste new foods for better health.
• Establish good food habits.	Eating a variety of foods at mealtime helps to insure a balanced diet.

Learning Experiences	*Resources*
• Read lunchroom menus for new foods or the same food prepared in a new way. • Correlate with school food service supervisor so that a new food can be tasted before it is served. • Plan a tasting party. Invite parents. Make place mats and decorations for the party. • Write short story about where new food comes from. Describe the taste of new food. Keep class notebook on new foods tasted. • Form a "clean-plate" club. Create a chart for bulletin board to show standing of class members. Discuss with school food service supervisor so that there can be a "two-bite" or "no thank you" size portion.	Home Economics teacher New England Dairy and Food Council *Let's Make Butter* (leaflet) School food service supervisor
• Discuss foods we eat for breakfast and lunch. • Establish a pattern for a good breakfast and lunch. Have class substitute a specific food for each pattern part. • Use food models to demonstrate the foods we eat for breakfast and lunch. • Draw foods for a complete breakfast or lunch. Cut out and paste onto paper plate.	Cereal Institute, Inc. *Bill's Better Breakfast Puppet Show*(film) Florida Citrus Commission *A Good Breakfast Is Fun* (poster) *We Help You Keep Fit* (poster) New England Dairy and Food Council *Food Models*

Behavioral Goals	*Generalizations*
• Stimulate cooperation between home and school in nutrition education.	Good food habits are more easily established when home and school work together.
• Introduce the importance of good health habits for safe food.	Food must be clean to be good to eat. Food that is not protected can make us sick.

Learning Experiences	*Resources*
• Visit market with teacher or mother to see variety of foods. Report to class or draw picture of what was seen. • Play supermarket. Bring empty cartons, cans, and packages to school, or use magazine cutouts. Use play money. • Make a trip to the bakery. Draw pictures of what was observed.	
• Draw picture of washing hands before eating. • Discuss why food should be washed before eating. Draw ways that food is soiled before eating — coming from ground, handled by grocer, spraying for insects. • Discuss ways that food or utensils are soiled in the cafeteria — dropped on floor, handled by someone else, used by someone else. • Visit the cafeteria to see ways that food is protected — women using utensils or plastic mitts, food covered, straws covered, silver dispensers, dish machine for washing dishes. • Ask mothers how they clean and protect food.	School food service supervisor School nurse

Behavioral Goals	*Generalizations*
• Create an appreciation for gracious table manners and courtesy to others.	Attractive food and surroundings make it more fun to eat.

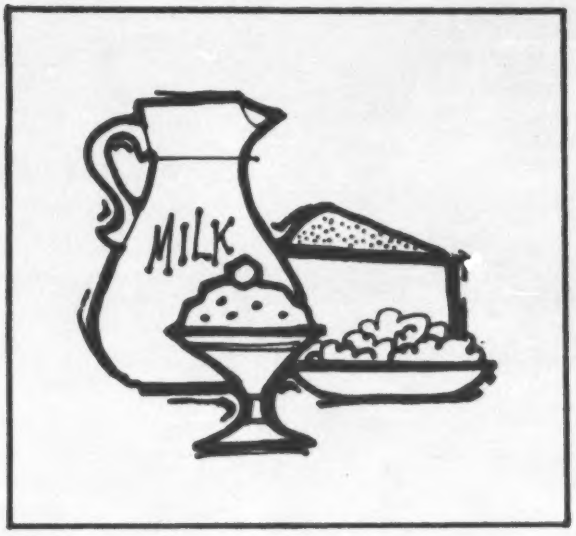
Learning Experiences	*Resources*
• Visit cafeteria to practice procedure for getting tray, utensils, and lunch. • Practice sitting at the cafeteria table properly without wiggling or spilling. • Practice saying "please" and "thank you." • Practice taking soiled dishes back to dish window. • Discuss how we use good manners at home during mealtime. • Practice setting a table at school. Set the table at home. • Make a table decoration for use at home. • Bring in pictures showing attractive meals and dining rooms. • Draw picture of someone showing good manners. • Have play meals to show good manners. • Invite parent to lunch, or invite sister or brother to lunch. • Plan a picnic lunch.	School food service supervisor

11

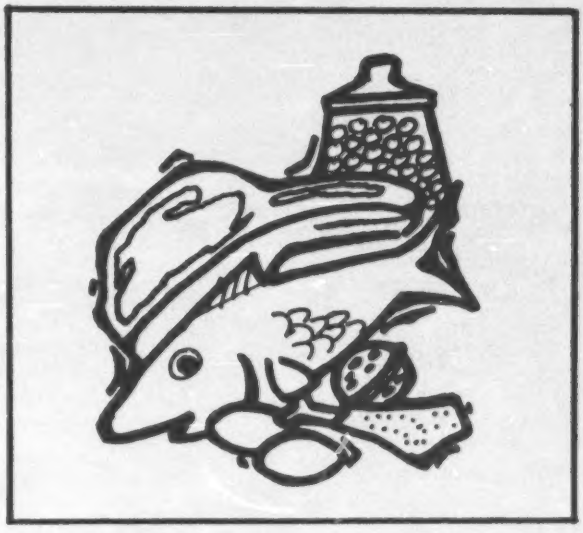
A TEACHER'S GUIDE

Grades Three, Four

Basic Concept: FOODS WE NEED EVERY DAY



MILK GROUP



MEAT GROUP

VEGETABLE-FRUIT GROUP

BREAD-CEREAL GROUP

Behavioral Goals	*Generalizations*
• Develop the understanding that the essential foods can be classified into four basic groups, and that some food from each group should be included in every meal.	The foods we eat can be divided into four basic groups.
• Establish the need for three nutritious meals daily. Between-meal snacks count, too.	Well-balanced meals contain some foods from each group. Breakfast contributes one-third of the daily food needs.

Learning Experiences	*Resources*
• Draw pictures illustrating foods from four basic groups. • Make posters or collages from magazine cutouts of four basic groups. • Make mobiles of four basic groups. • Set up display of four basic groups using food models. • Conduct food survey of class to see how many included all the foods from the basic four yesterday.	American Bakers Association *What's in Our Food* (filmstrip) Cereal Institute, Inc. *The Good Grains* (teacher's guide and wall chart) Florida Citrus Commission *You Need These Foods Daily for Good Health* (poster) New England Dairy and Food Council *A Guide to Good Eating* (poster and miniature) *Food Models* United Fresh Fruit and Vegetable Association *Jane and Jimmy Learn About Fresh Fruits and Vegetables* (pamphlet) United States Department of Agriculture *Daily Food Guide* (poster) *Follow the Food Guide Every Day* (poster)
• Discuss foods from basic four for each meal. Set up display with food models showing amounts needed. • Make class survey of breakfast habits. • Have each student record and analyze what he ate for breakfast. Find the food groups that are missing (if any). Have each decide how he can improve his breakfast the next day. Bring paper home to discuss with parent. • Set up breakfast display using food models. • Make mobiles of breakfast foods. • Have a "Better Breakfast" club. • Have a breakfast party in the cafeteria. Make decorations for the party.	Cereal Institute, Inc. *Breakfast Unit - Basic Breakfast Pattern* (teacher's guide and a wall chart can be used for mobile) *Skimpy and a Good Breakfast* (filmstrip) Florida Citrus Commission *Get Aboard the Good Ship Vitamin C* (booklet) National Livestock and Meat Board *Elementary Nutrition Kit* New England Dairy and Food Council *What Did You Have for Breakfast This Morning?* (poster, activity piece, teacher's guide)

Behavioral Goals	*Generalizations*
	The Type A lunch contributes one-third of the daily food needs.
	Snacks contribute to the goals of the basic four.
• Continue the interest in, and the acceptance of, new foods.	There is a wide variety of foods in each of the basic four groups.

Learning Experiences	*Resources*
• Discuss the school lunch menu and how it meets the basic four requirements. • Have each student record what he ate for lunch and analyze it as he did for breakfast. • Set up a lunch display using food models. • Plan a school lunch menu to serve in the cafeteria. • Survey plate waste in the cafeteria. • Using food models or magazine cutouts, select balanced meals.	New England Dairy and Food Council *Food Models* *Make Lunch Count* (poster and miniature) School food service supervisor
• Discuss and illustrate snack foods. • Prepare healthful snack foods. • Analyze snack foods according to four basic food groups.	New England Dairy and Food Council *Cooking Is Fun* (pamphlet) *Cooking Kit* *Do You?* (poster)
• Keep notebook of new foods eaten from each food group. • Prepare and taste new foods. • Use foods to illustrate antonyms or sensory experiences: hot and cold, sweet and sour, soft and hard.	New England Dairy and Food Council *Cooking Kit*

Behavioral Goals	*Generalizations*
• Create an appreciation for the people who supply the foods we eat.	Many people cooperate to bring us the food we eat every day.
• Continue the cooperation between home and school in nutrition education.	Home and school complement each other in making nutrition education a viable experience.

Learning Experiences	*Resources*
• Visit a farm, bakery, supermarket. Report on how food is grown, harvested, marketed. • Make a produce map of the state; country; or world. • Bring in labels or magazine cutouts showing where foods come from. • Bring in pictures of foods being harvested or processed. • Report on the different parts of the plant from which vegetables come: root, stem, leaf, flower. • Report on how the seasons of the year affect the food we eat. • Make a study of the household equipment mother uses to feed us. • Study the cafeteria menu to see where the foods come from. • Visit the cafeteria to see foods being prepared. • Write thank-you notes to ladies in the cafeteria. • Report on the making of a loaf of bread — from the harvesting of the wheat to the delivery of the bread to the grocery store. • Visit school kitchen to watch bread being made.	American Institute of Baking *Bread in the Making* (pamphlet) New England Dairy and Food Council *Life on Dairy Farm* (filmstrip) *Model Cow* *Model Farm* *Our Bread and Butter in Pioneer Days* (teacher reference) *Uncle Jim's Dairy Farm* (booklet and film) *Where We Get Our Foods* (pamphlet) School food service supervisor Wheat Institute *Story of Wheat* (filmstrip)
• Invite parents to breakfast party. Make a report on class breakfast survey. • Have a parents' day for lunch. Make decorations. Set up a display. Present a skit on the foods in the basic four groups. • Write letters to parents telling them what the class is learning in nutrition education.	School food service supervisor

Behavioral Goals	*Generalizations*
• Introduce the relationship between growth, strong bones and teeth, and the foods we eat.	The foods we eat every day make us grow. Foods from the milk and meat groups are especially important for growth.

Learning Experiences	*Resources*
• Study different kinds of milk. Taste. • Prepare nutritious drinks with milk. • Compare cost of milk at school and at home. • Make a class survey on the consumption of milk. • Perform vinegar experiment with cooked chicken bone. • Have an aquarium. Feed fish. Make reports on the feeding of fish. • Have a cage of live pets. Guinea pigs are excellent pets. Feed pets. • Bring in pictures of pets, or draw pictures of pets. Report on what they eat and how their eating habits change as they grow. • Have a room garden. Have children plant seeds from foods that they have eaten such as apples or oranges. • Plant seeds under different environment such as without water, or without sunlight. Make reports. • Discuss foods that make us grow. Keep a personal growth record. • Learn about the various animals that give us meat by making posters from magazine cut-outs. • Visit classrooms of older students conducting animal experiments. Make reports.	Florida Citrus Commission *A Bright Smile Is to Keep* (folder) New England Dairy and Food Council *Animals that Give People Milk* (pamphlet) *Cow Breed Pictures* *Dairy Drinks for Any Season* (recipes) *How We Take Care of Our Teeth* (pamphlet)

12
A TEACHER'S GUIDE

Grades Five, Six

Basic Concept: FOOD MAKES US LOOK AND FEEL DIFFERENT

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Behavioral Goals	*Generalizations*
• Introduce the nutrients supplied by the four basic food groups and relate their value to the body.	Foods contain nutrients that the body needs for growth, maintenance, and repair.

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Learning Experiences	*Resources*
• Do a class survey on vitamin and mineral intake. • Prepare reports on minerals: calcium, phosphorus, iron, iodine. • Make comparison graphs of nutritional content of milk compared to carbonated beverage. • Analyze school lunch menu for vitamin and mineral content. Plan special days for 100 percent participation in school lunch. Make announcements on intercommunication system. Prepare notices for lower grades. • Have class survey the number and kinds of sweets eaten in one day. • Conduct animal experiment using Type A lunch. • Make charts and graphs on animal experiments. • Invite lower grades to view animals. Explain what is happening. • Write articles about experiments for school newspaper. • Make a study of enriched foods. Bring in labels or cartons showing enriched foods. Set up a display. • Prepare a grain chart showing the most used grains. Bring in examples of the variety of ways they are used. Examine package label for nutrient content. • Create three dimensional pictures using various grains, cereals or macaroni.	Massachusetts Dental Society *Behind the Smile* (film) *Project: Teeth-Dental Health and Classroom Science* (film) New England Dairy and Food Council *Animal Feeding Demonstration for the Classroom* (kit) *Comparison Cards* *The Great Vitamin Mystery* (pamphlet) *Let's Take Milk Apart* (pamphlet) *Taking Milk Apart* (teacher's guide) *Vitamins from Food* (film) School food service supervisor

Behavioral Goals	*Generalizations*
• Show how the body alters the food eaten.	The body digests the food we eat and rebuilds it into a form it needs for growth and maintenance. Water, fiber, and calories contribute to good health.
• Demonstrate how other sciences lend a hand.	Other sciences help to increase the food supply, improve the quality, and make it safe to eat.

Learning Experiences	*Resources*
• Discuss the body anatomy in relation to digestion. • Outline the process of digestion. • Relate how the way you feel affects digestion. • Discuss functions of water, fiber, and calories.	New England Dairy and Food Council *Food, Energy and You* (film) *How Your Body Uses Food* (filmstrip, pamphlet, teacher's guide)
• Give oral or written reports on famous people in health and science. • Show how science has increased the food supply by better technology. • Make a study of helpful and harmful insects as they relate to the food we eat. • Take field trips to see how food is processed. • Interview the Board of Health, school doctor or nurse, to see what precautions are taken for safe food. Write a report for school newspaper. • Visit cafeteria to see sanitation practices. • Report on some of the regulations of the Food and Drug Administration. • Make a study of the food used in space; on the battle front; in a submarine.	Charles Scribner's Sons *The Great Nutrition Puzzle* (book) Local health department Massachusetts Department of Commerce *Town or City Monograph* School doctor School food service supervisor School nurse United States Department of Health, Education and Welfare, Food and Drug Administration United States Army Research Laboratory Food Services

Behavioral Goals	*Generalizations*
• Develop cooperation with the community as well as continue the interest of the parents.	Community facilities help to extend nutrition education. A safe water supply is an important contribution of the community.
• Create an appreciation for our neighbors, their food habits and customs.	All people do not eat alike. Family, religion, and nationality can affect the foods we eat.

Learning Experiences	*Resources*
• Write letters or reports to parents about the results of the animal experiments or class surveys. • Write reports for local newspaper about experiments and surveys. • Give reports on radio or television about experiments and surveys. • Report on community groups that help to disseminate nutrition information. • Prepare displays for bulletin boards or store windows to illustrate the need for good nutrition or to report on experiments and surveys. • Make a survey of water supplies: drinking fountain, picnic, wells, city supply.	Local water department Massachusetts Department of Commerce *Town or City Monograph*
• Study food habits of different sections of this country. Visit a market to see local and out-of-state produce. • Study breakfast patterns of other countries. Serve a foreign breakfast menu in the cafeteria. • Study other food customs from foreign countries. Show how they supply the needed nutrients. • Study holiday customs. Plan special meals in cafeteria. Decorate tables. Dress in native costumes. Invite parents or school officials. • Write to pen pals overseas about food customs. • Study food customs of early man; Indians. • Have a pioneer day in the cafeteria. • Study religious customs as they affect food habits. Have a tasting party of special foods.	American Dietetic Association *Understanding Food Patterns in the U.S.A.* (pamphlet) American Home Economics Association *Entertaining Foreign Visitors* (pamphlet) *Family Holidays Around the World* (pamphlet) New England Dairy and Food Council *The Big Dinner Table* (film) *What Did You Have for Breakfast This Morning?* (poster, teacher's guide, activity piece) School food service supervisor

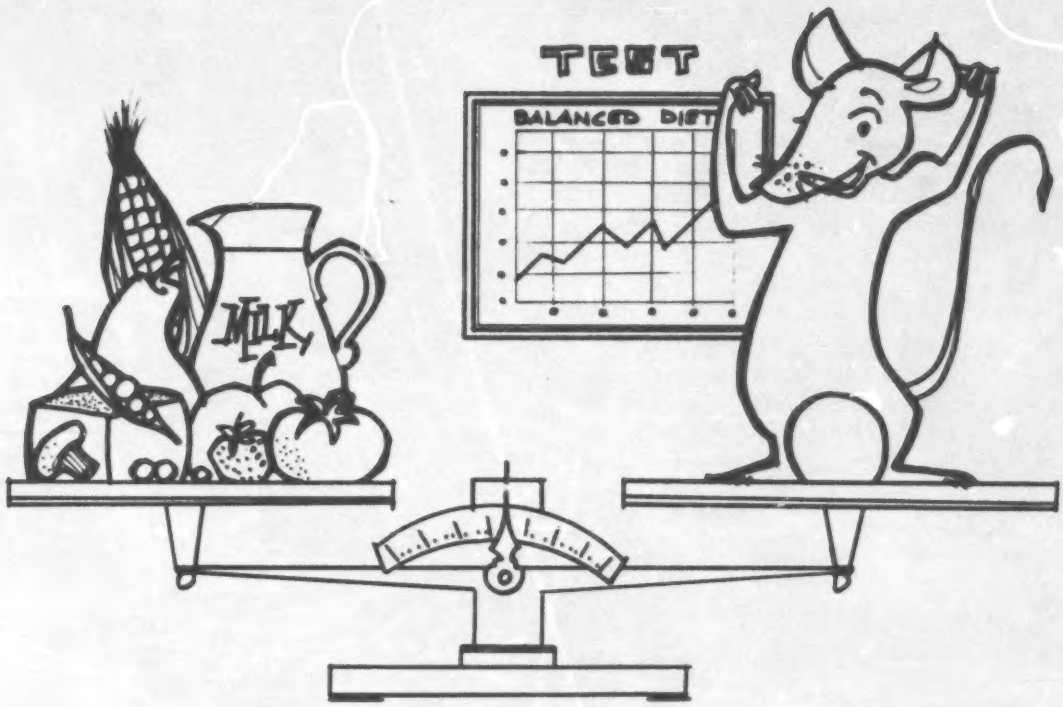
PART THREE
TEACHING AIDS AND RESOURCE MATERIAL

Part Three presents some teaching aids and resource material for nutrition education. There are many others that could be substituted for those listed, or used to supplement them.

The school lunch program has long been recognized by the National Congress of Parents and Teachers as an educational program, providing daily what for many children is the only nutritionally balanced meal they receive. The teacher can use the lunchroom as an extension of her classroom, to develop attitudes and knowledge about nutrition that will be an asset to children and their families the rest of their lives.

Mrs. Jennelle Moorhead
Former President
National Congress of Parents and Teachers

13
ANIMAL EXPERIMENTS



The scientific aspects of nutrition offer many opportunities for enriching science teaching. Among the most useful are animal experiments if they are correctly carried out. Directions are available from several sources listed in this chapter.

GUIDING CHILDREN'S OBSERVATIONS OF ANIMAL EXPERIMENTS

- Which animal gained the most?
- Which has the nicest fur or feathers?
- Which has the brightest eyes?
- Which seems the healthiest?
- Which is most friendly?
- Which is the best looking now?
- What kind of posture do they have? (A healthy rat or guinea pig walks with its body close to the floor; a sick one is often hunched up or stiff. A healthy bird stands tall and walks easily; a sick one huddles on the floor of the cage or walks stiffly.)
- What made one healthier and more friendly than the other?
- Would it do the same for people?
- What differences are there between our food and theirs?

When rats are shown to other grades, parents, and visitors or are photographed for the paper, these questions and answers can form the basis for the report, plus graphs of their growth and displays of the foods they were fed.

ANIMAL FEEDING EXPERIMENTS, NEW ENGLAND DAIRY AND FOOD COUNCIL

In communities served by the New England Dairy and Food Council, healthy white rats of the right age will be delivered to the school, with directions for their study and care, and will be taken back at the end of the experiment. A Dairy Council nutritionist will visit the school during the study to answer questions.

Directions for chick feeding experiments can be found in the Dairy Council booklet, *Animal Feeding Demonstrations for the Classroom.* It includes materials and supplies which are needed for housing and suggestions for diets to be used.

- With rats: Whole-grain vs. unenriched refined cereals
  Good vs. poor breakfasts
  Good vs. poor lunches
  Growth value of milk
  Effect of eating large amounts of concentrated sweets
- With chicks: Type A lunch vs. poor school lunch
- With pigeons: Value of vitamin B-1 (thiamine) to young pigeons

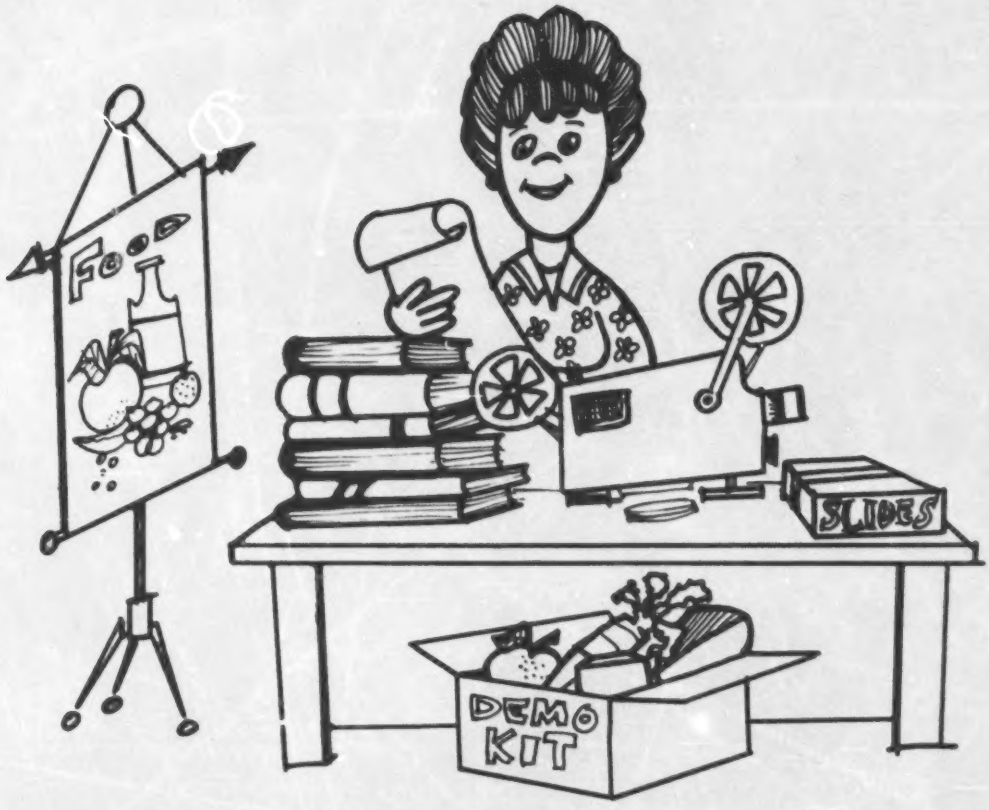
ANIMAL FEEDING EXPERIMENTS, UNITED STATES OFFICE OF EDUCATION

Methods and rations for several animal feeding experiments are given in *Teaching Nutrition in the Elementary School,* United States Office of Education, Nutrition Education Series No. 7, pages 12-15.

WHITE RAT FEEDING EXPERIMENT, AMERICAN MEDICAL ASSOCIATION

A detailed description of a class experiment is given in the article, *White Rats Help Youngsters Learn Good Nutrition,* by Dennis Orphan, published in *Today's Health,* American Medical Association, March, 1962, page 34.

14
EVALUATION OF ILLUSTRATIVE MATERIAL AND VISUAL AIDS



Illustrative material should be varied, reliable, and up to date. It is the teacher's responsibility to select material. A critical eye should be developed because of the multitude of things available. Students can be encouraged to bring in supplementary material but should be trained in judging what they select.

SUITABILITY

- Is it chosen to fit different classes as carefully as textbooks?
- Is it adapted to them in appeal, scientific data, and vocabulary?
- Is the material not otherwise available in the texts and reference books?
- Does it add essential emphasis to fundamental points or merely carry the discussion into detours?
- Can the information — stated or implied — be used by the students in their daily living?
- Is the price of the illustrative material in relation to its value?

AUTHENTICITY

- Is the information scientifically sound and accurate?
- Is the author of recognized standing in his profession?
- How thorough is the information?
- What is the publication date?

EDUCATIONAL VALUE

- Does the material develop scientific objectivity rather then undue introspection, and sound judgment rather than superstition and fear?
- Is it constructive, stressing prevention of disease and evaluation of student's own assets and liabilities?
- Do the food models, animals, exhibits, or pictures help you to teach more effectively, or do they distract attention by their artistic or entertaining qualities?
- Is the form and printing layout spacious, attractive, and easily read?
- Are posters used to supplement the text and develop judgment or merely to fill space on a wall?

APPRAISAL OF ADVERTISING MATERIAL

- Are different types of advertising materials used to teach discrimination between scientific facts and false or misleading statements?
- Does the advertising give pertinent points regarding the best use of the product or try merely to increase sales?
- Is the advertiser ethical or does he prescribe without regard to individual needs, delaying proper treatment by encouraging self-medication?
- Does the advertisement deceive by use of scientific terms giving an erroneous impression — even without misstatement of facts?
- Do the claims verge on quackery?

FOODS AND FOOD MODELS

Many classes use fresh foods and empty containers brought from home or borrowed from the school cafeteria. Children may cut pictures from magazines and mount them on cardboard, or make their own from crepe paper, plasticene, or other media.

Plastic foods and plaster can be purchased, or sometimes borrowed, from food equipment and display companies. Life-size paper models of foods in color are available from a number of sources. Rubbing paper models with wax preserves color and prevents wear.

FLORIDA CITRUS COMMISSION

Thirty-two food models of breakfast items in color and natural size.

NEW ENGLAND DAIRY AND FOOD COUNCIL

Set of 171 colored paper food models, and a set of breakfast food models. A cardboard display stand is also available.

Annotated Bibliography

BOOKS

Consumers All, United States Department of Agriculture, 1965.
Pertinent sections on kitchen equipment, basic nutrition, food purchasing, storage, and preparation. 496 pp.

Food and Man, Miriam E. Lowenberg et al. John Wiley and Sons, Inc., New York, 1968.
Excellent history of food in relation to man, dietary diseases and the discovery of their cures; foods in relation to cultural, ethnic, and religious background; history of federal and United Nations programs to improve nutrition. 339 pp.

Food Becomes You, Ruth M. Leverton. Iowa State University Press, Ames, Iowa, 1965.
Includes practical nutrition information for lay and professional people in a very readable format. Available in paperback. 208 pp.

Food for Us All, The Yearbook of Agriculture, United States Department of Agriculture, 1969.
Describes the economics of food from farm to supermarket; buying and cooking food; and nutrition with emphasis on basic food needs and creating good food habits. Historical development of school lunch, commodity distribution, food stamp program, and Child Nutrition Act. 360 pp.

Food, The Yearbook of Agriculture, United States Department of Agriculture, 1959.
Comprehensive volume on the importance of food and nutrition prepared by experts in the field. Very good glossary. 736 pp.

Fundamentals of Normal Nutrition, Corinne H. Robinson. The Macmillan Co., New York, 1968.
College text for use by students of programs in elementary education, dental hygiene, physical education, and home economics. Contains good information on nutrients; food selection for nutritional, psychological, and cultural values; in-service nutrition education and international problems; and programs in nutrition. 669 pp.

Great Nutrition Puzzle, The, Dorothy L. Callahan and Alma Smith Payne. Charles Scribner's Sons, New York, 1956.
Relates the historical development of the science of nutrition in a readable format. 189 pp.

Nutrition, Margaret S. Chaney and Margaret L. Ross. Houghton Mifflin Co., Boston, 1966.
A technical college text for students in nutrition with pertinent information on body needs during some periods of the life cycle as well as nutritional problems and concerns of today. 511 pp.

Nutrition and Physical Fitness, L. Jean Bogert, George M. Briggs, and Doris Howes Callaway. W.B. Saunders Co., Philadelphia, 1966.
Classic college text. Contains basic nutrition information. Teacher reference. 580 pp.

Nutrition Education in Action — A Guide for Teachers, Ethel A. Martin. Holt, Rinehart, and Winston, Inc., New York, 1963.
To be used with textbook, *Nutrition in Action*, for students and teachers of elementary education. An excellent aid for in-service training in nutrition education. 135 pp.

Nutrition for the Growing Years, Margaret McWilliams. John Wiley and Sons, Inc., New York, 1967. (First corrected printing, September, 1968)
A college text for classes in child nutrition. Of value to nutritionists, physicians, educators, public health workers, and parents. Covers nutritional needs of the unborn child through his adolescence; weight control; the sick child; questions mothers ask; and recipes of food favorites. 303 pp.

Nutrition in Action, Ethel A. Martin. Holt, Rinehart, and Winston, Inc., New York, 1965.
Good introductory college text for students with limited scientific background. 298 pp.

Nutrition in the Elementary School, Frances R. Godshall. Harper and Bros. Pub., New York, 1958.
Nontechnical nutrition information for elementary school teachers on nutritional needs of children, development of desirable food habits. 112 pp.

Power to Produce, United States Department of Agriculture, 1960.
Offers good background material in changes in technology which affect our way of life, not only in tools and machinery, but also in production and processing of foods, plus a forecast of future changes. 480 pp.

Protecting our Food, United States Department of Agriculture, 1966.
An all-encompassing book covering protection of our food from growth, through processing and packaging, to the consumer. Mentions some changes in food technology and new horizons in research. 386 pp.

FILMS

Cereal Institute, Inc.
Bill's Better Breakfast. An interesting puppet show to encourage children to eat breakfast. 13½ minutes. Color. *Grades Kindergarten, One, Two.*

Massachusetts Dental Society
Behind the Smile. Emphasizes nutrition but conveys dental health education by stressing good foods for the prevention of tooth decay. 16 mm. Color. Sound. 20 minutes. *Grades Five, Six.*

Project: Teeth-Dental Health and Classroom Science. Experiment involving diet of white rats. 16 mm. Color. Sound. 14½ minutes. *Grades Five, Six.*

New England Dairy and Food Council

Big Dinner Table, The. Features children from other cultures thriving on foods different from ours, but shows that all foods belong to four basic food groups. Explains that people eat for pleasure and for growth and maintenance. 16 mm. Color. 12 minutes. *Grades Five, Six.*

Food, Energy and You. Animated scenes show the basic process by which plants store energy via the process of photosynthesis as well as the human mechanisms which release and use energy from food. 16 mm. Color. 20 minutes. *Grades Five, Six.*

Uncle Jim's Dairy Farm. Provides an opportunity to enrich the child's understanding of daily living on a dairy farm, and to help the child grasp the importance of food and care for his own growth and health. Also, a teacher's guide for the use of this film. 16 mm. Color. 12 minutes. *Grades Three, Four.*

Vitamins from Food. Reenactment of the stories of the discovery of vitamins, and an animation of the coenzyme function in metabolism. 16 mm. Color. 18 minutes. *Grades Five, Six.*

FILMSTRIPS

American Bakers' Association

Food We Eat, The. Story of two youngsters traveling (moving) across the country. On their trip, they see where their food comes from (fruits, vegetables, dairy farm, food animals, and wheat). Trip to supermarket and meal planning included. *Grades Kindergarten, One, Two.*

What's in Our Food. Story of two children — their reasons for growth based on four basic food groups. Explains the terms: fats, protein, carbohydrate, mineral, and vitamin. Illustrates the foods that supply these nutrients. *Grades Three, Four.*

Cereal Institute, Inc.

Skimpy and a Good Breakfast. Thirty-seven frames with captions in color. Breakfast chart and elementary teacher's guide sent with filmstrip. (Also available with Spanish, French, and German captions for beginning foreign language classes.) *Grades Three, Four.*

New England Dairy and Food Council

How Your Body Uses Food. Companion to pamphlet of the same title. *Grades Five, Six.*

Life on a Dairy Farm. Forty-six frames in color and record. Helps children to understand family life on a dairy farm. It shows the work involved in caring for the cows, getting milk, and taking it to the city. A teacher's guide is also available. *Grades Three, Four.*

Wheat Flour Institute

Judy's Family Food Notebook. Sixty frames with captions, teacher's guide. Color. Foods are presented according to four food group plan. *Grades Three, Four.*

Story of Wheat. Seventy-six frames. Traces the history of wheat from its beginning to the present-day methods of sowing, tilling, harvesting, and milling. It stresses the social, cultural, and nutritional aspects of wheat. Color. *Grades Three, Four.*

KITS, ACTIVITY PIECES, AND MISCELLANEOUS

Florida Citrus Commission

Better Breakfast Cut-outs. Thirty-two food models in color and natural size for use on a flannel board. Includes teacher's script, *Better Breakfast on Stage*, as an introduction to its use. Bookmarks in classroom quantity may be requested. *Grades Kindergarten, One, Two.*

C Is for Citrus. Master for making a monthly calendar to be filled in by students. *Grades Kindergarten, One, Two.*

Four Seasons. Master. Good aid for teaching daily need for citrus. *Grades Kindergarten, One, Two.*

Fun Cut-Outs. For use with poster, *The Citrus Family.* Classroom project — children create their own vitamin C family while learning about citrus fruits. *Grades Kindergarten, One, Two.*

Nutrition Ladder to Better Health, The. For use with poster of same title. Individual sliding ladders to demonstrate essential nutrients and their food sources. *Grades Five, Six.*

Orange Clock, The. Master. Die-impressed face of clock on a half of orange. Good aid for teaching the importance of citrus fruit, numbers, coloring, and telling time. *Grades Kindergarten, One, Two.*

Word Picture of Florida Citrus. Master. Shows many aspects of the citrus story in words and pictures. *Grades Kindergarten, One, Two.*

National Livestock and Meat Board

Elementary School Nutrition Kit. Includes twenty-four-page child's reader, illustrated in color; work folder, *My Daily Food Record;* and a teacher's manual. *Grades Three, Four.*

New England Dairy and Food Council

Animal Feeding Demonstrations for the Classroom. Care, feeding, and characteristics of rats. Healthy white rats of the right age will be delivered to the school, with directions for their care and study, and will be taken back at the end of the experiment. *Grades Five, Six.*

Comparison Cards. Set of fifty cards (11" x 8½"). Colorful bar graphs show major nutrient values contained in selected items. Excellent visual for comparison of food choices. *Grades Five, Six.*

Cooking Kit. Two-burner, electric hot-plate; cooking utensils; and serving dishes. To provide classroom experiences that will bring "children and food happily together" and improve food habits and attitudes. *Grades Three, Four.*

Dairy Drinks for Any Season. Recipes of dairy drinks and decorative garnishes for them. *Grades Three, Four.*

Food Models. One hundred seventy-one photographic, life-size models, in color, and four-page teacher's guide. With the food models, a variety of foods for daily meals and the size of food portions can be shown. Food values and their contribution to recommended daily allowances for girls fourteen to sixteen years old are printed on the back of the models. *All grades.*

Model Cow. A vinyl plastic scale reproduction of a dairy cow. *Grades Three, Four.*

Model Farm. Wood-carved animals, farm equipment, and barn help children learn about milking and other farm activities. *Grades Three, Four.*

Urban Panorama. Full-color wall panel; sixteen black and white sketches; 33 ⅓ record; and four-page teacher's guide. Gives the child an overall picture of the city. Encourages him to investigate his own environment. *Grades Kindergarten, One, Two.*

What Did You Have for Breakfast this Morning? Activity piece to accompany teacher's guide and poster of same title. *Grades Three, Four.*

United States Army Research Laboratory

Brochures available and field trips arranged by appointment. *Grades Five, Six.*

United States Department of Health, Education and Welfare

Pamphlets, fact sheets, brochures dealing with many aspects of keeping food safe for consumption. *Grades Five, Six.*

PAMPHLETS

American Dietetic Association

Understanding Food Patterns in the U.S.A. A compilation of food patterns of cultural and ethnic groups in the U.S.A. A good teacher's reference. *All grades.*

American Home Economics Association

Entertaining Foreign Visitors. India, Japan, Israel — hints for hospitality; dos and donts for conversation, food, entertainment. *Grades Five, Six.*

Family Holidays Around the World. Entertaining, informative accounts of festivals, feasts, and customs of families of the world. Description of more than fifty holidays in thirty countries. Some recipes included. *Grades Five, Six.*

American Institute of Baking

Bread in the Making. Story of a trip through a bakery. Explanation of terminology used. Fifteen pages. *Grades Three, Four.*

Cereal Institute, Inc.

Better Breakfast Activities. Breakfast unit; teacher's guide. Includes breakfast and cereal information and suggests learning experiences. Sixteen pages. *Grades Three, Four.*

Good Grains, The. Teacher's guide. Includes cereal grain and breakfast information, and suggests learning experiences. Eight pages. *Grades Three, Four.*

American Medical Association

Your Body and How It Works. Provides an introduction to the human body — how it is made and how it works. Good, simple explanation of the digestive system. Thirty-two pages. *Grades Five, Six.*

Florida Citrus Commission

A Bright Smile Is to Keep. Colorful folder on dental care. Includes list of right foods to eat daily, together with good snack choices, with emphasis on citrus. *Grades Three, Four.*

Get Aboard the Good Ship Vitamin C. Cartoon illustrations in color relating history of citrus and vitamin C. *Grades Three, Four.*

Massachusetts Department of Commerce

Monographs of Cities and Towns. Relative to water and topography. *Grades Five, Six.*

New England Dairy and Food Council

Animals that Give People Milk. Presents milk animals of the United States and the world; the historical role of the cow; and the importance of milk. Thirty-two pages. *Grades Three, Four.*

Cooking is Fun. Beginner's story-type cookbook. Gives recipes children can prepare. Directions stimulate home and school cooperation. *Grades Three, Four.*

Great Vitamin Mystery, The. Historical tales of intrigue and adventure that relate the discovery of five important vitamins. The roles of all nutrients are considered. Through a series of food experiments, students are encouraged to become food detectives. *Grades Five, Six.*

How We Take Care of Our Teeth. Designed to promote dental health. Provides the opportunity for discussing: eating well, brushing teeth, and going to the dentist. Sixteen pages. Companion poster. *Grades Three, Four.*

How Your Body Uses Food. Dramatic art, photographs, and text encompassing easy, safe experiments with foods to challenge the child's interest in the wonders of his body's use of foods for growth, energy, and health. Twenty-eight pages. *Grades Five, Six.*

Let's Make Butter. Activity folder (9" x 7") folds into a stage on which the child can use accompanying puppet to tell his story of "milk and butter." Teacher's guide includes directions for making butter in the classroom, artwork, activities, and references. *Grades Kindergarten, One, Two.*

Let's Take Milk Apart. Illustrated student handbook contains a set of food experiments designed to examine the components of milk. Has reference material about dairy products and the nutrients in milk. Thirty-two pages. *Grades Five, Six.*

My Friend the Cow. The story of milk and where it comes from. Thirty-six pages. *Grades Kindergarten, One, Two.*

Our Bread and Butter in Pioneer Days and Today. Teacher reference and resource booklet for integrating nutrition education into the curriculum. Develops a unit in the social sciences at the lower intermediate level. Sixteen pages. *Grades Three, Four.*

Taking Milk Apart. Teacher reference with a detailed explanation for using the process approach, which is a new method for science education in carrying out food experiments. This booklet is intended to be correlated with *Let's Take Milk Apart.* Forty-eight pages. *Grades Five, Six.*

Uncle Jim's Dairy Farm. Provides enrichment for a child's understanding of life on a dairy farm, and the importance of food for good health. Twenty-four pages. *Grades Three, Four.*

Where We Get Our Food. Explains where we get the foods from the basic four categories. Illustrations depict many foods in their natural environment and workers who help bring food to us. Twenty pages. *Grades Five, Six.*

United Fresh Fruit and Vegetable Association

Jane and Jimmy Learn About Fresh Fruits and Vegetables. Shows ways in which fruits and vegetables fit into the diet. Can be used to familiarize students with a variety of fruits and vegetables; improve reading skills; and as a coloring book. *Grades Three, Four.*

United States Department of Agriculture

Good Foods Coloring Book, The, P.A.-912. Attractive booklet showing four basic food groups, food sources of each, and how each source is used in the diet. Teaches good food selection; coloring; and reading. Large print. Available in English and Spanish. *Grades Kindergarten, One, Two.*

POSTERS

Cereal Institute, Inc.

A Basic Breakfast Pattern. Breakfast unit. Illustrates foods for a basic breakfast. Designed so that it may be cut out, pasted on cardboard, and used as a mobile. (16" x 22") *Grades Three, Four.*

Grains — Origin of Breakfast Cereals. Colorful illustrations of barley, corn, oats, rice, and wheat; cross sections of grain kernels with structural parts identified. (16" x 22") *Grades Three, Four.*

Florida Citrus Commission

Citrus Family, The. Fun illustration in color of grapefruit, orange, and tangerine. (18" x 25") *Grades Kindergarten, One, Two.*

Good Breakfast Is Fun, A. Colored illustration of three children eating a variety of foods for breakfast, with emphasis on citrus. (18" x 25") *Grades Kindergarten, One, Two.*

Nutrition Ladder to Better Health, The. Colorful poster showing essential nutrients, good food sources, and primary functions of each. Individual sliding ladders to visually demonstrate essential nutrients and their food sources are available for students upon request. (18" x 25") *Grades Fives, Six.*

You Need These Foods Daily for Good Health. Depicts basic four food groups, in color, superimposed on a cut half of orange. (18" x 25") *Grades Three, Four.*

We Help You Keep Fit. Colored illustration of citrus fruits with a catchy jingle; functions of vitamin C. (18" x 25") *Grades Kindergarten, One, Two.*

New England Dairy and Food Council

Cow Breed Pictures. Pictures of breeds of cows with description of their origin, history, and general characteristics. (8½" x 11") *Grades Three, Four.*

Do You? Dental poster. Shows necessity for regular brushing of teeth; visits to the dentists; and the need for good food. Miniatures also available. (24" x 19) *Grades Three, Four.*

Every Day Eat 1-2-3-4 Way. Five panels joined. Helps children understand foods contained in the four food groups necessary for their growth and health. Miniatures also available. *Grades Kindergarten, One, Two.*

Guide to Good Eating, A. Color photographs of the foods contained in the four major food groups. Leaflets and miniatures also available. (18" x 28") *Grades Three, Four.*

Make Lunch Count. Shows components of a well-balanced lunch. Miniatures also available. (27" x 18") *Grades Three, Four.*

What Did You Eat for Breakfast This Morning? Illustration of children with varied ethnic backgrounds to show that food habits can be different and still be healthful. Teacher's guide and activity piece also available. (36" x 23") *Grades Three, Four.*

United States Department of Agriculture

Daily Food Guide. Illustrates basic four food groups and the minimum numbers of servings needed from each. *Grades Three, Four.*

Addresses

American Baker's Association
20 North Wacker Drive
Chicago, Illinois 60606

American Dietetic Association
620 North Michigan Avenue
Chicago, Illinois 60611

American Home Economics Association
1600 Twentieth Street, N.W.
Washington, District of Columbia 20009

American Institute of Baking
400 East Ontario Street
Chicago, Illinois 60611

American Medical Association
535 North Dearborn Street
Chicago, Illinois 60610

Cereal Institute, Inc.
135 South LaSalle Street
Chicago, Illinois 60603

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Massachusetts Dental Society
Suite 4318, Prudential Center
Boston, Massachusetts 02199

Massachusetts Department of Commerce
Bureau of Research
100 Cambridge Street
Boston, Massachusetts 02202

National Livestock and Meat Board
36 South Wabash Avenue
Chicago, Illinois 60603

New England Dairy and Food Council
1034 Commonwealth Avenue
Brighton, Massachusetts 02135

United Fresh Fruit and Vegetable Association
777 14th Street, N.W.
Washington, District of Columbia 20005

United States Army Research Laboratory
Food Services
Natick, Massachusetts 01760

United States Department of Agriculture
Government Printing Office
Washington, District of Columbia 20402

United States Department of Health, Education and Welfare
Food and Drug Administration
John F. Kennedy Federal Building
Boston, Massachusetts 02203

Wheat Flour Institute
309 West Jackson Boulevard
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